

What is claimed is:

1. An EGR gas cooling mechanism comprising:
a heat exchanger coupled to an introducing route and a delivery route for a cooling medium liquid for cooling EGR gas, the heat exchanger comprising:
a body pipe having an inlet for the EGR gas located at one end and an outlet for the EGR gas located at the other end;
a flowing route for EGR gas provided inside the body pipe,
wherein a thermal medium fluid having a high boiling point of 150 degree Celsius or higher is supplied as the cooling medium liquid to the heat exchanger to prevent soot and condensed liquid from being attached to an inner surface of the flowing route of the EGR gas by heating operation for the inner surface of the flowing route of the EGR.
2. An EGR gas cooling mechanism comprising:
a heat exchanger coupled to an introducing route and a delivery route for a cooling medium liquid for cooling EGR gas, the heat exchanger comprising:
a body pipe having an inlet for the EGR gas located at one end and an outlet for the EGR gas located at the other end;
a flowing route for EGR gas provided inside the body pipe,
wherein a controller for controlling supply of the cooling medium liquid is provided at the flowing route in which a thermal medium fluid having a high boiling point of 150 degrees Celsius or higher is supplied as the cooling medium liquid to the heat exchanger.
3. The EGR gas cooling mechanism according to claim 2, wherein the controller includes a circulation pump disposed at the introduction route for the cooling medium liquid and a control valve, and wherein a supplying amount of the cooling medium liquid supplied to the heat exchanger is controlled by either or both of increasing and decreasing operation for flowing amount of the circulation pump and opening and closing operation of the control valve.
4. The EGR gas cooling mechanism according to claim 2, wherein the controller controls the supplying amount of the cooling medium liquid to the heat exchanger according to any of temperature or temperatures at the surface of the flowing route of the EGR, the outlet of the cooling medium liquid, and the outlet of the EGR gas.
5. The EGR gas cooling mechanism according to claim 1, wherein the heating operation for the inner surface of the flowing route of the EGR gas is made in range between 120 degrees Celsius and 150 degree Celsius.